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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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Applicant(s): Bantz et al.  
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Art Unit: 2136  
Examiner: Cervetti, David Garcia  
Title: Decryption System For Encrypted Audio  
Attorney Docket No.: 909L.0056.USU  
Customer No.: 29,683

Commissioner For Patents  
P.O. Box 1450  
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### Appeal Brief

Sir:

This is an appeal brief in regard to the final rejection of claims in the above-identified patent application. A Notice of Appeal was mailed to the USPTO on 5/9/2006. The fee under 37 C.F.R. §41.20(b)(2) was paid with the previous appeal brief filed on July 10, 2006. Please charge deposit account 50-1924 for any fee deficiency.

### I. Real Party In Interest

The real party in interest is Lenovo, Inc.

### II. Related Appeals and Interferences

There are no directly related appeals or interferences regarding this application.

### III. Status Of Claims

Claims 1-17 are pending in this application. Claims 1-17 have been rejected by the Examiner. The rejection of Claims 1-17 is appealed.

### IV. Status Of Amendments

Since the final rejection of 01/17/2006 one amendment was filed on 4/21/2006. In an advisory action mailed 05/26/2006, the examiner indicated that the amendment would be entered. In addition to the amendment filed 4/21/2006, a response to the advisory action was filed on 6/20/2006.

### V. Summary of Claimed Subject Matter

#### Independent claim 1

An encrypted audio decryption system (10) for decrypting encrypted audio sound (30) is provided (page 3, lines 12-15). The system comprises a hearing device (14) and a key FOB (16) (page 3, lines 23-25). The hearing device is adapted to receive the encrypted audio sound, decrypt the encrypted audio sound, and transmit signals corresponding to the decrypted audio sound to an acoustic transducer of the hearing device (page 5, line 23 - page 6, line 5). The key FOB is adapted to transmit a decryption key to the hearing device (page 7, lines 30-31). The hearing device is adapted not to decrypt the encrypted audio sound without receipt of the decryption key, corresponding to the encrypted audio sound, from the key FOB.

#### Dependent claim 3

The "means to delete the decryption key" recited in claim 3 is described on page 6, line 6 et seq. (among other places) wherein it is described that the processor (20) is adapted to periodically delete the decryption key stored in the memory (24).

#### Dependent claim 8

The "means for transmitting a plurality of different decryption keys" and the "means for periodically changing" recited in claim 8 is described on page 9, line 10 et seq. (among other places) wherein it is described that the decryption key seed can be changed periodically via e-mail, the Internet, or a wired or wireless connection, and that if security is compromised, the user can be sent a new key seed which generates a new sequence of private keys in the FOB.

#### Independent claim 9

An audio hearing device (14) comprising a microphone (26); a system (20, 22, 24) for decrypting encrypted audio sounds received at the microphone; and an acoustic transducer (28) adapted to be placed at a user's ear (page 4. line 30 et seq.). The acoustic transducer is connected to the decrypting system for transmitting decrypting audio sounds from the acoustic transducer to a user's ear. The decrypting system comprises a memory (24) and a system (22, 20) for receiving and temporarily storing a decryption key in the memory (page 5, lines 5-6). The decrypting system requires a predetermined decryption key in the memory in order for the decrypting

system to decrypt the encrypted audio sounds (page 5, line 29 page 6, line 5).

Independent claim 12

A method for decrypting encrypted audio sounds (30) comprising steps of:

receiving the encrypted audio sounds at a hearing device (14) having an acoustic transducer (28) at an ear of a user (page 5, lines 24-27);

receiving a decryption key by the hearing device (page 5, lines 8-10 and 23-24); and

decrypting the encrypted audio sounds by the hearing device if the decryption key matches a predetermined decryption key for the encrypted audio sounds (page 5, line 29 - page 6, line 1).

VI. Grounds of Rejection to be Reviewed on Appeal

- A. Are claims 1 and 5-8 unpatentable under 35 U.S.C. §103(a) over Thompson et al. (US 5,267,312) in view of Hsu et al. (US 6,041,410)?
- B. Are claims 2-4 unpatentable under 35 U.S.C. §103(a) over Thompson et al. (US 5,267,312) in view of Hsu et al. (US 6,041,410) and Neoh (US 6,668,204)?
- C. Are claims 9-11 unpatentable under 35 U.S.C. §103(a) over Neoh (US 6,668,204) in view of Dabbish et al. (US 4,914,697) and Thompson et al. (US 5,267,312)?

D. Are claims 12-17 unpatentable under 35 U.S.C. §103(a) over Thompson et al. (US 5,267,312) in view of Hsu et al. (US 6,041,410) and Neoh (US 6,668,204)?

## VII. Argument

A. 35 U.S.C. §103(a) - Thompson et al. (US 5,267,312) in view of Hsu et al. (US 6,041,410) (claims 1 and 5-8).

### Claim 1

Claim 1 claims an encrypted audio decryption system for decrypting encrypted audio sound comprising

"a hearing device adapted to receive the encrypted audio sound, decrypt the encrypted audio sound, and transmit signals corresponding to the decrypted audio sound to an acoustic transducer of the hearing device; and

a key FOB adapted to transmit a decryption key to the hearing device..."

Thompson et al. discloses an audio signal cryptographic system having a subscriber box 22 used with video and audio signals such as cable or satellite television signals. As described in column 9, lines 40-55 of Thompson et al., the subscriber box 22 has multiple decryption keys (DE-Keys). Each audio frame 131 has information identifying a pre-specified one of the multiple decryption keys (DE-Keys) which is embedded in the independent data portion 131f (ID) of each audio frame 131. Multiple decryption keys (DE-Keys) are used to make sure no one key can be used to decode the signal, and real-time

decoding must occur for each audio/video frame for that frame to be decrypted.

Hsu et al., on the other hand, merely discloses a fob for verifying a person's identity before granting access. Hsu et al. is designed to authenticate a user, whereas Thompson et al. is for subscriber box descrambling. There appears to be no suggestion to combine the references as the examiner is attempting to do.

Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. (see MPEP 2143.01, page 2100-98; column 1). The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination (see MPEP 2143.01, page 2100-98, column 2).

In the present case, there appears to be no suggestion why a person skilled in the art would want to replace the decoding system of the subscriber box 22 in Thompson et al. with a user authentication system such as described in Hsu et al. Where in the cited art is there a suggestion to restrict viewing of the television signals described in Thompson et al. to be viewed only when a user is near the subscriber box 22 with a FOB? This would not appear to make sense since the television signals in Thompson et al. are intended to be viewed by anyone with a subscriber box 22 (multiple locations and users) regardless of who is located in the proximity of the

subscriber box 22. Changing the frame-by-frame decryption keys (DE-Keys) embedding disclosed in Thompson et al. would appear to go against the teaching of Thompson et al. to have real-time frame-by-frame varied encoding. There appears to be no suggestion to combine the teachings of Hsu et al. with Thompson et al. The suggestion only appears to occur after reading applicants' patent application.

In the office action dated 01/17/2006, page 3, lines 3-5, the examiner stated that "controlling/authenticating access to resources by using FOBs, encryption, and decryption was conventional and well known". This was challenged by applicants' attorney with the examiner responding by citing the following art:

U.S 5,369,706  
US 6,081,893  
US 2003/0105964  
US 2003/0149666  
US 2002/0109580

However, none of these references disclose or suggest controlling/authenticating access to resources by using FOBs in an encrypted audio decryption system for decrypting encrypted audio sound. The examiner's reliance on "office notice" is overly broad.

The examiner has not established a prima facie case of obviousness. Even assuming, for the sake of argument, that the examiner is correct that "controlling/authenticating access to resources by using FOBs, encryption, and decryption was conventional and well known", it was not well known in the area of an encrypted audio decryption system for decrypting encrypted audio sound. The examiner has pointed to no

suggestion why it would have been obvious to combine "controlling/authenticating access to resources by using FOBs, encryption, and decryption" outside the area of an encrypted audio decryption system for decrypting encrypted audio sound with Thompson et al. or Hsu et al. to render claim 1 obvious. As noted above, obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. The examiner has pointed to no teaching, suggestion, or motivation to combine his "official notice" observation with the cited art to render claim 1 obvious. The features of claim 1 are not suggested in the rationale relied upon by the examiner (the cited art and the "official notice"). Therefore, claim 1 is patentable and should be allowed.

Claims 5-7 stand or fall with claim 1.

#### Claim 8

Claim 8 claims that the key FOB comprises means for transmitting a plurality of different decryption keys, and means for periodically changing the decryption key transmitted to the hearing device. The examiner has admitted that the cited art does not disclose the features of claim 8, but relies on "Official Notice" for rejecting claim 8 stating that key FOBs which generate/transmit a plurality of different keys



was well known in the art. Even assuming, for the sake of argument, that key FOBs which generate/transmit a plurality of different keys were well known in the art, this still does not disclose or suggest applicants' claimed means for periodically changing the decryption key transmitted to the hearing device as recited in claim 8. In addition, applicants' attorney challenges the examiner's "official notice" because it is believed that in the art of an encrypted audio decryption system for decrypting encrypted audio sound it was not well known to have a key FOB comprises means for transmitting a plurality of different decryption keys.

The examiner has failed to establish a prima facie case of obviousness. The examiner has not established a teaching, suggestion, or motivation, found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, why it would be obvious to combine or modify the teachings of the prior art to produce the claimed invention. The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. There is nothing in the examiner's rationale for combining Thompson et al. and Hsu et al. and the examiner's "official notice" to produce applicants' invention as claimed in claim 8. The rationale only comes after reading applicants' patent application.

Therefore, the Board is requested to reverse the examiner's rejection of claim 8.

B. 35 U.S.C. §103(a) - Thompson et al. (US 5,267,312) in view of Hsu et al. (US 6,041,410) and Neoh (US 6,668,204) (claims 2-4).

Claim 2

Claim 2 claims that the hearing device comprises a memory having the decryption key stored therein when the key FOB transmits the decryption key to the hearing device. Neoh discloses a memory 32 for storing audio characteristic coefficients for balancing and equalization processes (see column 3, line 66 - column 4, line 18 and column 4, lines 42-55). There is no disclosure or suggestion of using the memory 32 for anything other than coefficients for balancing and equalization.

There appears no suggestion to combine Neoh with the teachings of Thompson et al. or Hsu et al. The examiner has failed to establish a prima facie case of obviousness. The examiner has not established a teaching, suggestion, or motivation, found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, why it would be obvious to combine or modify the teachings of the prior art to produce the claimed invention. There is nothing in the examiner's rational for combining Hsu et al. and Neoh with the teaching of Thompson et al. to produce applicants' invention as claimed in claim 2. The suggestion to combine these references only comes after reading applicant's patent application. Therefore, claim 2 is patentable and should be allowed.

Claim 4 stands or falls with claim 2.

### Claim 3

Claim 3 claims that the hearing device comprises means to delete the decryption key stored in the memory after a predetermined period of time. The examiner has admitted that the features of claim 3 are not suggested by the cited art, but relies upon "Official Notice" stating that deleting a key after a certain amount of time has elapsed in order to protect data was well known in the art. Applicants' attorney challenges the examiner's "official notice" because it is believed that in the art of an encrypted audio decryption system for decrypting encrypted audio sound, it was not well known to have a hearing device with means to delete the decryption key stored in the memory after a predetermined period of time. Therefore, it is believed that the examiner has failed to establish a prima facie case of obviousness.

There appears no suggestion to combine Neoh with the teachings of Thompson et al. or Hsu et al. The examiner has failed to establish a prima facie case of obviousness. The examiner has not established a teaching, suggestion, or motivation, found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, why it would be obvious to combine or modify the teachings of the prior art to produce the invention claimed in claim 3. There is nothing in the examiner's rationale for combining Hsu et al. and Neoh with the teaching of Thompson et al. to produce applicants' invention as claimed in claim 3. The suggestion to combine these references only comes after reading applicant's patent application. The features of claim 3 are

not disclosed or suggested in the art or record. Therefore, claim 3 is patentable and should be allowed.

C. 35 U.S.C. §103(a) - Neoh (US 6,668,204) in view of Dabbish et al. (US 4,914,697) and Thompson et al. (US 5,267,312) (claims 9-11).

Claim 9

Claim 9 claims an audio hearing device comprising:

a microphone;

a system for decrypting encrypted audio sounds received at the microphone; and

an acoustic transducer adapted to be placed at a user's ear, the acoustic transducer being connected to the decrypting system for transmitting decrypting audio sounds from the acoustic transducer to a user's ear..."

The examiner stated that "Thompson teaches an acoustic transducer adapted to be placed at a user's ear, the acoustic transducer being connected to the decrypting system for transmitting decrypting audio sounds from the acoustic transducer to a user's ear." The examiner cites column 5, lines 20-68, column 37, lines 58-68, and column 38, lines 1-30 of Thompson et al. However, the columns and line numbers cited by the examiner do not appear to disclose this. Thompson et al. merely discloses a television set (see Fig. 2A). Similar to that noted above, there appears no suggestion to combine the references as the examiner has attempted to do. Why would a person skilled in the art combine Dabbish et al.

with Neoh? Why would a person skilled in the art then go on to combine the television cryptographic system of Thompson et al. with Dabbish et al. with Neoh? The suggestion only comes after reading applicants' patent application. Otherwise, there is no suggestion in the cited art to combine their teachings in the manner the examiner is attempting to do.

A statement that modifications of the prior art to meet the claimed invention would have been "well within the ordinary skill of the art at the time the claimed invention was made" because the references relied upon teach that all aspects of the claimed invention were individually known in the art is **not sufficient** to establish a prima facie case of obviousness without some objective reason to combine the teachings of the references. (see MPEP 2143.01, page 2100-99, column 1) Ex parte Levengood, 28 USPQ2d 1300 (Bd. Pat. App. & Inter. 1993). >See also Al-Site Corp. v. VSI Int'l Inc., 174 F.3d 1308, 50 USPQ2d 1161 (Fed. Cir. 1999) (The level of skill in the art cannot be relied upon to provide the suggestion to combine references.) The examiner has pointed to no objective reason to combine the teachings of the references.

The examiner has failed to establish a prima facie case of obviousness. The cited references might individually disclose various features of applicants' claimed invention, but there is no suggestion to combine those features to produce applicants' invention as claimed in claim 9. The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. There is no

such suggestion of the desirability of the combination in this case.

The features of claim 9 are not disclosed or suggested in the cited art. Therefore, claim 9 is patentable and should be allowed.

#### Claim 10

Claim 10 is dependent upon claim 9 and claims that the memory is volatile. There is no disclosure or suggestion in Neoh that the memory 32 is volatile. Even if, for the sake of argument, the memory 32 in Neoh was considered volatile, there still is no suggestion to combine the teachings of Neoh with Dabbish et al. and Thompson et al. as the examiner is attempting to do. The features of claim 10 are not disclosed or suggested in the cited art. Therefore, claim 10 is patentable and should be allowed.

#### Claim 11

Claim 11 claims that the system for decrypting encrypted audio sounds comprises a wireless receiver for receiving a signal having the decryption key. As noted with respect to claim 10, there is no suggestion to combine the teachings of Neoh with Thompson et al. as the examiner is attempting to do. There is no suggestion in the cited art (at least not until after reading applicants' patent application) of using Neoh's wireless receiver to send Thompson's signal having a decryption key. The suggestion simply does not exist. Without this suggestion, the examiner has failed to establish a prima facie case of obviousness. The features of claim 11

are not disclosed or suggested in the art of record. Therefore, claim 11 is patentable and should be allowed.

D. 35 U.S.C. §103(a) - Thompson et al. (US 5,267,312) in view of Hsu et al. (US 6,041,410) and Neoh (US 6,668,204) (claims 12-17).

#### Claim 12

Claim 12 is a method claim. Claim 12 claims receiving the encrypted audio sounds at a hearing device having an acoustic transducer at an ear of a user. Nowhere in Thompson et al., Hsu et al. and Neoh is there a disclosure or suggestion of receiving encrypted audio sounds at a hearing device having an acoustic transducer at an ear of a user. Thompson et al. discloses audio signals which are encrypted, but they are decrypted by the subscriber box 22 before they are sent to the speakers 136a, 136b of the television. There is no disclosure or suggestion in the cited art of a hearing device having an acoustic transducer (or similar device) at an ear of a user receiving encrypted audio sounds as recited in claim 12. The features of claim 12 are not disclosed or suggested in the cited art. Therefore, claim 12 is patentable and should be allowed.

#### Claim 13

Claim 13 claims that the step of receiving a decryption key comprises transmitting the decryption key from a key FOB carried by the user. The examiner admits that the cited art does not disclose or suggest this feature, but relies on "official notice" stating that key fobs which transmit a key was well known in the art. However, Applicants' attorney

challenges the examiner's rejection and use of "official notice" because it is believed that transmitting the decryption key from a key FOB carried by the user was not well known in the art in the area of decrypting encrypted **audio sounds**. In addition, it was not well known in the art (or suggested by the cited art in combination with what was well known in the art) to transmit a decryption key from a key FOB carried by the user in a step of receiving a decryption key by the hearing device in a method for decrypting encrypted audio sounds. The features of claim 13 were not suggested in the cited art, or suggested in the cited art in combination with what might have been well known in the art. Therefore, claim 13 is patentable and should be allowed.

Claim 14 stands or falls with claim 13.

#### Claim 15

Claim 15 claims storing the decryption key in a memory of the hearing device. Neoh discloses a memory 32 for storing audio characteristic coefficients for balancing and equalization processes (see column 3, line 66 - column 4, line 18 and column 4, lines 42-55). There is no disclosure or suggestion of using the memory 32 for anything other than coefficients for balancing and equalization. There appears no suggestion to combine Neoh with the teachings of Thompson et al. or Hsu et al. The suggestion to combine these references only comes after reading applicant's patent application. There is no disclosure or suggestion in Neoh of storing a decryption key in a memory 32. There is no suggestion provided by Thompson et al. of storing a decryption key in a memory 32 of Neoh. The features of claim 15 are not disclosed or suggested in the



cited art. Therefore, claim 15 is patentable and should be allowed.

#### Claim 16

Claim 16, in addition to the features of claim 15, claims deleting the decryption key stored in the memory upon a predetermined event. In rejecting claim 16 the examiner admits that the cited art does not disclose or suggest this feature, but relies on "official notice" stating that deleting a key after a certain amount of time has elapsed in order to protect data was well known in the art. However, applicants' challenge this rejection and "official notice" because it is believed that deleting a decryption key stored in the memory upon a predetermined event was not well known in the art in the area of decrypting encrypted **audio sounds**. The examiner has established no nexus or connection to combine his official notice statements into the field of decrypting encrypted **audio sounds**. There is no suggestion to combine art as the examiner is attempting to do without first reading applicants' patent application. The features of claim 16 are not disclosed or suggested in the cited art. Therefore, claim 16 is patentable and should be allowed.

#### Claim 17

Claim 17 is dependent upon claim 16 and claims that the step of the deleting the decryption key from the memory occurs periodically. The examiner admits that the features of claim 17 are not disclosed in the cited art, but takes "official notice" that performing tasks periodically was well known in the art. It appears that the examiner believes that all

inventions which add performing of tasks periodically are unpatentable. This is clearly erroneous. Regardless of the fact that some tasks may have been performed periodically in the prior art, there still is no disclosure or suggestion of periodically deleting a decryption key from a memory as recited in claim 17. The features of claim 17 are not disclosed or suggested in the cited art or made obvious in combination with the examiner's "official notice".

#### VIII. Claims Appendix

Attached.

#### IX. Evidence Appendix

None.

#### X. Related Proceedings Appendix

None.

#### Conclusion

In view of the arguments presented above, it is respectfully requested that the Examiner's rejections of Claims 1-17 be reversed.

Respectfully submitted,

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## **VIII. CLAIMS APPENDIX**

1. An encrypted audio decryption system for decrypting encrypted audio sound, the system comprising:

a hearing device adapted to receive the encrypted audio sound, decrypt the encrypted audio sound, and transmit signals corresponding to the decrypted audio sound to an acoustic transducer of the hearing device; and

a key FOB adapted to transmit a decryption key to the hearing device,

wherein the hearing device is adapted not to decrypt the encrypted audio sound without receipt of the decryption key, corresponding to the encrypted audio sound, from the key FOB.

2. An encrypted audio decryption system as in claim 1 wherein the hearing device comprises a memory having the decryption key stored therein when the key FOB transmits the decryption key to the hearing device.

3. An encrypted audio decryption system as in claim 2 wherein the hearing device comprises means to delete the decryption key stored in the memory after a predetermined period of time.

4. An encrypted audio decryption system as in claim 2 wherein the hearing device comprises a wireless receiver for receiving a wireless signal comprising the decryption key from the key FOB.

5. An encrypted audio decryption system as in claim 1 wherein the key FOB comprises a wireless transmitter for transmitting the decryption key to the hearing device.

6. An encrypted audio decryption system as in claim 5 wherein the key FOB comprises a biometric sensor.

7. An encrypted audio decryption system as in claim 6 wherein the biometric sensor comprises a fingerprint sensor.

8. An encrypted audio decryption system as in claim 5 wherein the key FOB comprises means for transmitting a plurality of different decryption keys, and means for periodically changing the decryption key transmitted to the hearing device.

9. An audio hearing device comprising:

a microphone;

a system for decrypting encrypted audio sounds received at the microphone; and

an acoustic transducer adapted to be placed at a user's ear, the acoustic transducer being connected to the decrypting system for transmitting decrypting audio sounds from the acoustic transducer to a user's ear,

wherein the decrypting system comprises a memory and a system for receiving and temporarily storing a decryption key in the memory, and wherein the decrypting system requires a predetermined decryption key in the memory in order for the decrypting system to decrypt the encrypted audio sounds.

10. An audio hearing device as in claim 9 wherein the memory is volatile.

11. An audio hearing device as in claim 10 wherein the system for decrypting encrypted audio sounds comprises a wireless receiver for receiving a signal having the decryption key.

12. A method for decrypting encrypted audio sounds comprising steps of:

receiving the encrypted audio sounds at a hearing device having an acoustic transducer at an ear of a user;

receiving a decryption key by the hearing device; and

decrypting the encrypted audio sounds by the hearing device if the decryption key matches a predetermined decryption key for the encrypted audio sounds.

13. A method as in claim 12 wherein the step of receiving a decryption key comprises transmitting the decryption key from a key FOB carried by the user.

14. A method as in claim 13 wherein the step of transmitting the decryption key comprises the user actuating a biometric sensor on the key FOB.

15. A method as in claim 12 further comprising storing the decryption key in a memory of the hearing device.

16. A method as in claim 15 further comprising deleting the decryption key stored in the memory upon a predetermined event.

17. A method as in claim 16 wherein the step of the deleting the decryption key from the memory occurs periodically.

None.

## **IX. Evidence Appendix**



## **X. Related Proceedings Appendix**

None.